Claims

1. A system for utilizing a digital computer to evaluate microscopic details of specimens, e.g. crystals, comprising:

a camera which generates an output signal representative of an image positioned in a focal plane of the camera,

a tray which positions a specimen in said focal plane,

a computer processing unit having a persistent storage device, which computer processing unit acquires said output signal from said camera,

said computer processing unit being programmed to evaluate said stored image from said camera and for generating a result signal representative thereof,

said computer processing unit being programmed to store said result signals in said persistent storage device.

2. The invention as defined in claim 1 wherein each said specimen comprises at least one crystal.

Amended

3. The invention as defined in claim 2 wherein said computer processing unit is programmed to count said crystals.

4. The invention as defined in claim 2 wherein said computer processing unit is programmed to generate three-dimensional surface plots of crystals within a database.

5. The invention as defined in claim 1 and comprising a movable stage for automatically positioning said specimens in said focal plane.

6. The invention as defined in claim 2 and comprising a T-squared filter to identify said crystals in each said specimen.

7. The invention as defined in claim 6 where said T-squared filter comprises a software program executed by said computer processing unit.

Amended

8. The invention as defined in claim 5 wherein said computer processing unit generates output signals to control the movement of said movable stage.

9. The invention as defined in claim 4 wherein data relating to said crystal(s) is stored in the database.

10. The invention as defined in claim 1 and comprising a light source directed to said specimen.

11. The invention as defined in claim 10 and comprising an optical fiber extending between said light source and said specimen.

12. The invention as defined in claim 2 and comprising a computer algorithm executed by said computer processing unit for rating said crystals with respect to predetermined standards.

13. The invention as defined in claim 2 and comprising a computer algorithm executed by said computer processing unit for simulating edges of crystals missing in said image generated by said camera.

14. The invention as defined in claim 2 wherein said computer processing unit is programmed to determine crystal size by determination of the length of the perimeter of said crystals.

Amended

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Claims

1. A system for utilizing a digital computer to evaluate microscopic details of at least one crystal, comprising:

a camera which generates an output signal representative of an image positioned in a focal plane of the camera,

a tray which positions said at least one crystal in said focal plane,

a computer processing unit having a persistent storage device, which computer processing unit acquires said output signal from said camera,

said computer processing unit being programmed to evaluate said stored image from said camera and for generating a result signal representative thereof,

said computer processing unit being programmed to store said result signals in said persistent storage device and performing at least one function selected from the group consisting of: to count crystals, to generate three-dimensional surface plots of crystals within a database, and to determine crystal size by determination of the length of the perimeter of said crystals.

2. The invention as defined in claim 1 and comprising a movable stage for automatically positioning said at least one crystal in said focal plane.

5. A system for utilizing a digital computer to evaluate microscopic details of at least one crystal, comprising:

a camera which generates an output signal representative of an image positioned in a focal plane of the camera,

a tray which positions said at least one crystal in said focal plane,

a computer processing unit having a persistent storage device, which computer processing unit acquires said output signal from said camera,

said computer processing unit being programmed to evaluate said stored image from said camera and for generating a result signal representative thereof,

said computer processing unit being programmed to store said result signals in said persistent storage device, and

a T-squared filter to identify said at least one crystal.

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The invention as defined in claim 5 where said T-squared filter comprises a software program executed by said computer processing unit.

The invention as defined in claim 7 wherein said computer processing unit generates output signals to control the movement of said movable stage.

The invention as defined in claim 1 wherein data relating to said at least one crystal is stored in the database.

A system for utilizing a digital computer to evaluate microscopic details of at least one crystal, comprising:

a camera which generates an output signal representative of an image positioned in a focal plane of the camera,

a tray which positions said at least one crystal in said focal plane,

a computer processing unit having a persistent storage device, which computer processing unit acquires said output signal from said camera,

said computer processing unit being programmed to evaluate said stored image from said camera and for generating a result signal representative thereof,

said computer processing unit being programmed to store said result signals in said persistent storage device, and

an optical fiber extending between a light source directed onto said at least one crystal and said at least one crystal.

The invention as defined in claim 1 and comprising a computer algorithm executed by said computer processing unit for rating said at least one crystal with respect to predetermined standards.

A system for utilizing a digital computer to evaluate microscopic details of at least one crystal, comprising:

Amended

a camera which generates an output signal representative of an image positioned in a focal plane of the camera,

a tray which positions said at least one crystal in said focal plane,

a computer processing unit having a persistent storage device, which computer processing unit acquires said output signal from said camera,

said computer processing unit being programmed to evaluate said stored image from said camera and for generating a result signal representative thereof,

said computer processing unit being programmed to store said result signals in said persistent storage device, and

a computer algorithm executed by said computer processing unit for simulating edges of crystals missing in said image generated by said camera.

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